Amendments to the Specification

Please replace paragraph [0041] at page 7 with the following amended paragraph:

[0041] Referring to Fig. 1, a conventional imaging system 101 is shown with a given aperture setting defined by aperture stop 110, where the lens plane 102 is parallel to the image plane 103. Additionally, the image sensor ~~array,~~ array 113 is located at the image plane 103 at a particular distance Di ~~distance, D_i~~ from the lens system. For an object 114, such as an optical code, which is located a distance Do ~~distance, D_o~~ from the lens system at object plane 104, the image is entirely in focus on the sensor array 113 according to first-order optics. Each object point, as represented by examples 117a and 117b, is conjugate to a corresponding image point, as represented by examples 118a and 118b. In these examples, 117a and 118a are conjugates, and 117b and 118b are also conjugates. If the optical code object 114 is moved away from object plane 104, then the image focus moves away from the image sensor 113 and the image on the sensor becomes blurred. Fig. 2 displays the case where the object 114 has been moved a greater distance Do_2 ~~distance, D_{o2}~~ away from the lens system. This action moves the image plane 103 closer to the lens system 112 to a distance Di_2 ~~distance, D_{i2}~~. The image is in sharp focus at plane 103, but is blurred at the sensor 113. As an example, the light from the optical code point at 117b is conjugate with point 118b, and can be seen to converge to a sharp focus at 118b. As the light rays from 118b continue beyond the image plane 103, they form a blur circle of diameter B_{118b} ~~B118b~~ by the time they strike sensor 113. Similarly, as the light rays from object point 117a converge on conjugate image point 118a and then continue beyond the image plane 103, they form a blur circle of diameter B_{118a} by the time they strike sensor 113.

Please replace paragraph [0042] at page 7 with the following amended paragraph:

[0044] Fig. 3 depicts the other out-of-focus condition, whereby the object 114 is moved to a distance Do_3 ~~distance, D_{o3}~~, which is closer to lens system 112. In this case, the image plane 103 moves away from the lens 112, to a distance Di_3 ~~distance, D_{i3}~~. In this case, the light from, for example, optical code object point 117a would converge to sharp focus at conjugate image point 118a except for the fact that it strikes image sensor 113 before reaching this point. As in the last case, a blur circle of diameter B_{118a} is formed on the image sensor. At

some point, the blur circles formed in the cases shown in Figs. 2 and 3 grow just large enough as to make the image too defocused to be of use. It is the location of the object planes 104 in these two extreme cases that define the inner and outer limits of the depth-of-field of the system. This depth-of-field is dependent upon the f-number of the system, which, for a given focal length lens, is just dependent upon the aperture stop 110. For a high f-number (small aperture) system the depth-of-field is greater than for a low f-number (large aperture) system. Unfortunately, although a large depth-of-field is desired for an optical code reading device, if the aperture is made smaller to achieve this goal, then the amount of light falling on the sensor, and thus the brightness of the image is greatly reduced.

Please replace paragraph [0044] at page 8 with the following amended paragraph:

[0044] For example, object point 117a on plane 104 is conjugate to point 118a on plane 103 and thus in focus on sensor 113. For an optical code 114 which intersects the object plane 104 anywhere along its extent, the line of intersection formed between the optical code plane 114 and the object plane 104 will be in sharp focus on image sensor 113. The depth-of-field for this system is determined by the limits of the object plane 104 as measured along the optical axis. The inner DOF limit $\underline{Do_{117b}}$ ~~Do117b~~, the outer limit $\underline{Do_{117a}}$ ~~Do117a~~, and the total DOF of the system is the distance between these two points, usually measured along the object plane. This depth-of-field is not dependent upon the aperture of the system and thus the aperture may be opened fully, allowing maximum image brightness.

Please replace paragraph [0046] at page 9 with the following amended paragraph:

[0046] Fig. 4b illustrates the imaging system depicted in Fig. 4a as a three-dimensional depiction. Fig. 4b shows an imaging system utilizing a Scheimpflug arrangement for achieving large depths-of-field at low f-numbers for reading optical codes using a tilted imaging array. The array 413 ~~413,~~ is a two-dimensional array of photodetectors as is typically employed in a CCD, CMOS, or other imaging sensor. A few of the many rows of photodetectors that make up the array are labeled 415, 420, and 425. As can be seen from Fig. 4b, the imaging array 413 has been tilted in one direction about the optical axis 410. The tilt angle α, lens focal length, aperture setting, and imaging array resolution may be selected

to obtain the desired characteristics of depth-of-field and scan line width at a certain distance from the lens system 412. When the imaging array 413 is tilted, the corresponding object plane 404 on the opposite side of the lens system 412 also tilts according to the Scheimpflug condition, whereby the sensor plane 403, the lens system plane 402, and the object plane 404 all intersect in a common line 405. With sufficient sensor tilt, the object plane will be substantially parallel to the optical axis. The shaded region 465 represents the projection of the image sensor 413 through the lens system 412 onto the object plane 404. As with a typical imaging system, points in image space which are closer to the lens will be projected farther from the lens in object space. Thus, the top end of the image sensor 484 corresponds or is conjugate to the bottom end of the projected image 494. Similarly, the bottom end of the sensor 485 is conjugate to sensor image 495. In the same manner, the line of photodetectors 415 corresponds to the image of this line 445 in front of the lens system. An optical code, such as 440 will be in focus on this line of photodetectors when it is in the position shown.